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Modelling Competitive Dynamics of
Strategic Group Impacts on Strategy
Formulation

William C. Bogner

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Modelling Competitive Dynamics of Strategic Group
Impacts on Strategy Formulation

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Paper submitted to the Business Policy and Planning Division, Academy of Management for the 1990 Annual Meeting, San Francisco. The author would like to thank Howard Thomas, Rhonda Reger, and three anonymous reviewers for their helpful comments on earlier versions of this paper. Please do not quote from this draft without permission of the author. All comments are welcome.

MODELLING COMPETITIVE DYNAMICS AND STRATEGIC GROUP IMPACTS ON STRATEGY FORMULATION

This paper attempts to model the role of strategic groups in the strategy formulation process from both an industry structure and a cognitive perspective. A model of the process is then presented which simultaneously incorporates both viewpoints. Relationships between external events and intra-industry instability are suggested.



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INTRODUCTION

In the last ten years the strategic group concept has become an accepted element in the environmental analysis phase of strategy formulation. Porter (1980) provided the rationale for the development of a simple strategic group map and most strategy textbooks have incorporated some version of his conceptualization (eg. Thompson and Strickland, 1990). In recent years two major additions to the original concept have been presented. First, Cool (1985) and Fiegenbaum (1987) presented strategic groups as dynamic, industry wide concepts whose impact on strategy formulation changes over time. They showed how over time there were periods of group stability broken by strategic discontinuity. During these periods of discontinuity, strategic group membership changed. Later, Fombrum and Zajac (1987), Porac, Thomas and Emme (1987), Reger (1988) and Porac, Thomas and Baden-Fuller (1989) presented an alternative conceptualization of strategic groupings. Their group maps were drawn based on the cognitive constructs of practitioners rather than on a statistical analysis of variables thought to represent the industry's key dimensions. They argue that it is this cognitive map, shared by industry members and enacted through environmental interactions (Weick, 1979), which directly influences strategy formulation decisions.

The simultaneous development of conceptualizations based on cognitive and economic concepts is not surprising given the grounding of the field of Strategic Management. The fields of Organizational Behavior (OB) and Industrial Organization Economics (IO) are both seen as disciplines from which strategic management models

are derived. Recent work on other questions in Strategic Management has attempted to simultaneously measure the impact of OB and IO factors on performance (Hansen and Wernerfelt, 1989). In that research impacts of an OB model of performance based on organizational climate and an IO model which included firm size and market share were integrated and a significant contribution by each toward a total measure of firm performance was observed from both sources.

In this paper a theoretical pluralism viewpoint is advanced suggesting that a multi-lensed view of questions in Strategic Management will provide richer analysis and a series of eclectic models in areas where researchers are still working to develop comprehensive models. With respect to the focus on strategic groups, an attempt is made to present both cognitive and economic based dynamic models of the different roles strategic groups are thought to play in the strategy formulation process. Three different models for viewing the role of strategic groups in the formulation process are presented. Two of the models will be derived from the existing literature, one from economics and one from cognitive psychology. Key external variables and their impacts on each process will also be examined. A more integrated comprehensive model is then presented and suggestions for testing this integrated model are made. A concluding section examines future research including the impacts of strategic groups on resource allocation decisions which flow from strategy formulation processes. General implications and directions for future research are also presented.

THE ORIGINAL CONCEPTUALIZATIONS OF STRATEGIC GROUPS

The original concept of a strategic group was proposed by Hunt (1972) in order to describe the asymmetry he observed in the strategies of members of the "white goods" industry. The firms he observed did not all follow a single strategy nor were the strategies randomly dispersed among the various combinations of available strategic choices. Instead, firms clumped around certain combinations of resource allocation and strategic choices. Hunt's work was the beginning of a stream of papers from Harvard University which sought to explain this phenomenon in terms of Industrial Organization (IO) economics (eg. Porter, 1973; Newman, 1973; Caves and Porter, 1977; Porter, 1979). In this approach researchers sought to modify the elements of the classic Bain (1959) paradigm so as to fit into the empirical results produced. Caves and Porter (1977), for example, modified the term "entry barriers" into "mobility barriers". Traditional IO variables for analyzing industries were used for grouping in these and other studies. Newman (1973) used vertical integration, Porter (1973) used firm size and Oster (1982) used advertising ratios. All of this work sought to provide a single "map" or industry representation which would show the industry grouping structure. This intra-industry structure was seen in IO as a primary reason for variations in performance among industry members (Porter, 1979). Consistent with the IO economics view, the activities of the top management team do not play a major role in the formation of groups. Therefore, the firm level cognitive processes of top level decision makers are not formally considered in a traditional Industrial Organization based model.

Over a similar time period researchers in strategic management have pursued an analysis of the strategic group concept independent of, but often influenced by, IO Economics. Initial work in strategy was done by Hatten, Schendel, Patton, Cooper and others at Purdue University (Hatten & Schendel, 1977; Hatten, Schendel & Cooper, 1978; Patton, 1976; Schendel & Patton, 1978). This line of research approached strategic grouping differently than the industry wide orientation of IO economics. The Purdue stream sought to focus on individual firms and their patterns of competition. Underlying the research were the strategic management assumptions of firm heterogeneity and a relationship between that heterogeneity and prior managerial decisions. Other researchers in strategic management also worked to develop an understanding of strategic grouping (See: McGee and Thomas, 1986, for a review). These studies focused on the relationships between groups and target markets (Harrigan, 1983), groups and risk levels (Ryans & Wittink, 1986; Baird & Sudharshan, 1983) and groups and Porter's (1980) generic classifications (Dess & Davis, 1984). Although all of these researchers examined strategic groups from different perspectives, they shared some common traits. The first trait was the belief that the researcher could objectively select the variables which would represent the strategic dimensions on which the groupings would be based. Such a view reflects an assumption that these objective criteria can be identified from a list of structural factors such as firm size or advertising levels and that each firm predicates its resource allocation decisions on these factors. A second trait of this research was the view that given these chosen dimensions, the industry's strategic grouping could be generally modeled with a single group map and at any point in time this single

grouping would provide information on management's strategic options by exposing competitive threats and opportunities (Porter, 1980). A third trait was an implication of the heterogeneity of profitability among the groups. Here the IO based concept of mobility barriers would provide member firms of more desirable groups with economic profits (Caves & Porter, 1977; Mascarenhas & Aaker, 1989). It was implied that by analyzing the profitability of different groups, more or less desirable strategies could be discovered. Not only would such results support the strategic group's theoretical existence, it would provide pragmatic justification for the research by providing managers with information which would help them compete more effectively.

McGee (1985) and McGee and Thomas (1986) pointed out some major weaknesses in the strategic group concept as it existed in the mid-1980s. One such weakness was the limited amount of dynamic research which had been done in studying strategic group change. This was closely tied to a second point: if strategic groups research is to live up to its promise, then it will have to be shown to be of value to practitioners in strategy formulation. For example, by understanding the current strategic group postures of competitors, a manager may be able to predict varying competitor responses to future changes in the task environment. Cool (1985) and Fiegenbaum (1987) also make this point and they simultaneously developed dynamic models of strategic groups in a single industry. Looking at the pharmaceutical and insurance industries respectively, they attempted to identify points in time where the intra-industry structure changed. They also sought to test differences in return, risk and risk-adjusted return between the groups derived in each

time period. Some supporting results were provided by each study, but both studies also showed the need for a richer model to more fully explore groups and their impact on managerial decisions.

Fiegenbaum (1977) suggested a process for enriching this understanding by introducing and testing the concept of the strategic group as a "reference group". This concept draws on the disciplines of IO economics and social psychology. It suggests that during periods of group stability managers are constantly adjusting resource allocations toward an idealized mix, or norm, for their strategic group. Using partial adjustment equations Fiegenbaum tested and found support for this idea. Although this point of his research suggests the need for a cognitive component in developing groupings, Fiegenbaum relied on the IO based method for determining group dimensions and memberships. As with prior conceptualizations of the role of strategic groups in strategy formulation both Fiegenbaum and Cool represent the grouping as a "objectively" drawn structuring of the whole industry. The term "objective" and its variations is used throughout this paper to refer to the way in which researchers select variables to be used in producing a representation of intra-industry structure. As Hatten and Hatten (1987) point out, there is no "real" group at all - all groups are analytical and conceptual constructs. However, the analytical and conceptual constraints derived from neo-classical economics are often times presented as "objective" reality and so will be referred to as such here.

AN "OBJECTIVE" MODEL OF STRATEGIC GROUPS

As McGee and Thomas's earlier criticism indicated, conceptual strategies need to be formulated in dynamic environments. While it is difficult to model continuous change in groupings, both Cool (1985) and Fiegenbaum (1987) developed nearly similar techniques for identifying periods of relative strategic stability interrupted by periods of change. Fiegenbaum called these periods, "stable strategic time periods" (SSTPs). By looking at a series of SSTPs over a long period, both Cool and Fiegenbaum were able to show patterns of change in the intra-industry structure of the industries they studied. Each SSTP was terminated because a sufficiently large number of firms made simultaneous changes in resource allocations. These strategy changes reflected the efforts of individual firms to move from one strategic group to another or of whole groups of firms moving in strategic space. It is noted in both studies that these changes are not random or smooth over time. Instead, they occur in bunches at one instant in time and the implication is drawn that the industry has received a "shock" of some sort which has created new opportunities or threats in the task environment to which the firms are responding. It is this response to a discontinuity in the environment which may lead to an unusually high number of firms changing strategies at one point in time. These sources of discontinuity became an important part of a dynamic model of strategic groups.

The impact of external technological discontinuity on the stability of an industry has been suggested by Tushman and Anderson (1987). Their research proposes that with respect to industries as a whole changes in the underlying technology can either

enhance or destroy a firm's current competitive position. With respect to a strategic group model, Tushman and Anderson's idea can be enhanced in two ways. First, it is suggested that in addition to changes in technology, changes in the legal/political/regulatory environment can produce shocks. This is consistent with both normative models (Thompson, 1967) and recent empirical research (Franko, 1989). Also, shocks may be brought about by an action of an individual industry member. A merger, acquisition or takeover of one firm may significantly alter the pattern of competition in the industry. Prospect Theory (Kahneman & Tversky, 1979) suggests that troubled firms may make unexpected and risky changes due to their poor competitive positions (Fiegenbaum & Thomas, 1988). Impacts from any of these sources could provide the impetus for significant changes in the strategic groupings and the industry competitive environment. An "objective" view of strategic groups would suggest that these external discontinuities impact the competitive environment in a deterministic manner, changing supply and demand conditions in the competitive environment and causing strategic responses from firms which will be homogeneous within groups and heterogeneous between groups.

The above literature gives an economic based model for conceptualizing strategic groups.

Insert Figure 1 about here

In this model it is assumed that an "objective" Strategic Group structure (OG_t) exists at any point in time, t . This grouping consists of the member firms, their mobility barriers and associated performance traits (risk, return, risk adjusted return). This grouping of competitors is an input to the strategy formulation process (SFP). It is suggested that this intra-industry structure has a significant impact on the process (SFP) and, hence, on a firm's resource allocation decisions (RAD) which emerge from it. As a result comparisons of the resource allocation decisions emerging from the strategy formulation process of individual firms can be used as the measures of group dimensions and group membership (eg. advertising spending in Oster (1982); R&D spending in Cool (1985)). Over time a stable grouping continues until a significantly disruptive discontinuity occurs in the task environment. These disruptions may take the form of Technological Change (TC), Legal, Political and Regulatory Change (RC) and other firm's resource allocation decisions (OFRDCs). These factors impact on the emerging new group structure by altering the costs and benefits associated with each firm maintaining current group membership or of switching groups. In this same vein resource allocation decisions (RAD) of the prior stable time period (SSTP) also impact the new group structure. Inertia, fixed capital and idiosyncratic investments will all influence how individual firms will position themselves in the new groupings (Rumelt, 1981). Not all groups in the industry will be impacted in the same way by the disruptive change (Porter 1980) but enough will so that a new stable structure will emerge. This new structure will then continue until yet another discontinuity occurs and the restructuring process begins over again.

A MODEL OF THE COGNITIVE CONCEPTUALIZATION OF STRATEGIC GROUPS

Model 1 seems to be the model which underlies most of the current strategic group research in the strategy field. However questions can be raised as to whether it is a complete or an accurate as a predictive model. One criticism of the above model is that the objectively drawn group map is not the cognitive construction of firm groupings a manager may be using when assessing the impact of, for instance, a technological change. Fiegenbaum's recent work may fit within the Model 1 framework. However, his concept of reference groups introduces cognitive processes into the relationship between strategic groups and strategy formulation. Research by Porac, Thomas and Emme (1987), Reger (1987), Porac, Thomas and Baden-Fuller (1989) and Porac and Thomas (1990) suggest that a manager's cognitive map of an industry will probably produce a different strategic grouping of an industry than that suggested in an IO oriented approach. Using IO driven ideas of what grouping should occur in retail markets these researchers contrasted "objective" economics-based maps to the cognitive or "perceptual" maps of the practitioners. In one study (Porac & Thomas, 1987) comparisons between the researcher's expectations of groupings and the cognitive categorization of the practitioners showed some surprisingly different results. Although the researchers anticipated other groupings, the groupings of the practitioners were not "irrational". On the contrary, how the retailers in all of these studies positioned themselves and their competition made perfect sense to them. All of these papers suggest that it is the practitioner's conceptualization of the intra-

industry structure enacted relative to the environment, not that of the researchers, which create the heterogenous patterns of competition exhibited by strategic groups. This makes sense. The groups are based on patterns of resource allocation decisions and the practitioners, not the researchers, are making resource allocation decisions for the firms based on their "perceptual" map of competition in the industry.

The cognitive approach to strategic groups has been studied empirically by Reger (1988) and Porac, et al. (1989) in two industry contexts, namely, banking and knitwear. Reger had 23 practitioners individually map the competitive positions of 18 holding companies in the Chicago banking industry. She then compared the maps each constructed. Reger felt that if groupings are drawn based upon these patterns of competition, then a common map should be shared by each participant. Although her results were not as strong as she hoped, they clearly indicated the existence of a collective view, or grouping, among most respondents concerning most firms. The strong implication is that this cognitive grouping is shaping the strategy formulation decisions of these bankers. In a similar manner, Porac et al., (1989) found the existence of cognitive communities (groups) in the context of the Scottish knitwear industry. The managers interviewed in and around Hawick, Scotland produced a clear grouping within the knitwear industry for themselves based on factors such as high price, fully-fashioned design, exclusive distribution outlets and quality image. Interviews tended to show common maps here, too, but it was also clear that some members of the group did not share the same view of the market opportunities they faced. In the study they exhibit conflicting maps of how competition should be

structured within the industry. The perceived prototype of the group is "a small firm manufacturing high quality fully-fashioned cardigans and pullovers" (Porac et al., 1989:411). Some managers are uncomfortable with a few of the larger Scottish producers who have begun to

contradict the conventional wisdom of focusing upon 'classical elegance' by developing lines of 'sports' garments such as cotton golf sweaters. Managers outside these firms regarded such developments with disdain, and complained that they represent a dilution of "Scottish quality".

Porac et al., (1989:411).

Apparently the managers themselves used difficult frameworks and variables to understand competition and there was cognitive dissonance among them. They focused on a range of key success factors e.g. fashion, quality, but did not, apparently, focus on size as a differentiating variable even though they were aware of size differences. In this respect, their competitive frames would differ from those suggested by IO economists (e.g. Porter (1980)) who would typically correlate size with key variables in framing a competitive analysis.

In this cognitive model firm resources are still allocated based on heterogeneous patterns of competition just as in Model 1 above. The difference is that the groups examined in the strategy formulation process are the many alternative cognitive constructions of each practitioner, not a single objectively drawn map. Reger and Huff (1989) argue that such maps are generally common among industry members with some overlap around the edges.

We can assume that the same external discontinuities which would upset the objective constructions in Model 1 would also upset the cognitive constructions of strategic groups. The impact, however, is now on cognitive processes, as it is through that process that the external world must pass. Using the same variable definitions as in Model 1 we can now construct a second Model representing strategic groupings in each time period as Cognitive Groupings (CG_t); groupings that exist in the mind of the strategist. In the Model 2 framework the Reference Group (RG) idea from Fiegenbaum (1987) is added for inclusiveness as an input to the cognitive groupings (CG).

Insert Figure 2 about here

PROBLEMS WITH THE ALTERNATIVE MODELS PRESENTED

The two models described so far present a conundrum so long as we hold to the idea that there is only one relevant strategic group structure in any time period, while also finding both arguments compelling. One way out of this dilemma would be to define strategic groups as "only" those groups which are either "objective" or "cognitive". The remaining schema is then defined as something other than a strategic group. This would be an easy solution if our aim is to define our way out of problems simply by restating the world. But it is precisely because we say that strategic groups explain heterogeneous grouping patterns in resource allocation decisions that both representations have claims to validity. Both represent grouping

patterns, both suggest that group members will respond in ways similar to one another and dissimilar to members of other groups and both suggest that managers see fellow group members as their primary competitors (Fiegenbaum, 1987; Porter, 1980). These conclusions apply equally to both conceptualizations and are in line with the *raison d'être* for studying strategic groupings in Strategic Management. It could be suggested that the objective groupings and the cognitive groupings are one and the same. However, there is a strong body of research suggesting that between an "objective reality" and a manager's perception of reality a significant bias or distortion may occur (Duhaime & Schwenk, 1985; Schwenk, 1984; Dawes, 1988) and it is the manager's perception after passing through that process which is taken into the strategy formulation process. This pool of research and its underlying rationale constitutes a strong argument in favor of strategy adopting a cognitive oriented research design. But strong arguments in favor of a more objective, economic oriented measurement process exist as well. For example, return to the upset Scottish knitwear executive discussed earlier. The complaints of some group members were directed at two larger firms which were abandoning the "classic elegance" focus strategy of the other members of the cognitive group in favor of a broader line which included "sportswear". The managing director of one firm told the interviewer:

The Barries and the Glenmacs are very good because they are trying to preserve quality. They are a good force in Scottish Knitwear. The 'niggers in the woodpile' are the Lyle & Scotts and the Pringles who have become so big that they lost their direction.

Porac, et. al. (1989:411)

From the standpoint of the "objective", IO Economics view it could be stated that the clear point the manager is missing is the role of the most basic of IO variables, size,

in shaping strategy. However it is equally true that what ever role size may play in shaping strategy, the general manager here sees groupings based on geography. With a simple classification concept (such as "Scottish Knitwear") humans cognitively assume a number of other traits (Porac & Thomas 1990). As a result the manager above assumes a whole strategy which should be followed by all group members and concludes that "the Lyle & Scotts and the Pringles" have "lost their direction", with potential negative performance consequences for the remaining firms in their inter-dependent group. The manager does recognize the role size plays in distinguishing his firm from the large firms, but this has just as clearly not been incorporated into his cognitive map. Both "objective" and "cognitive" maps contribute to understanding this example, but neither of the two alternatives alone is sufficient to fully explain the role of firm groupings in the strategy formulation process, in spite of their extensive use in prior research. There exists a need to develop a third model which integrates both perspectives.

BASIS FOR A DYNAMIC MODEL OF OBJECTIVE AND COGNITIVE GROUPINGS

One way to approach such a problem is to observe how similar problems are handled in related disciplines. There is a similar debate concerning the nature of environments found in the Organization Theory literature. Pfeffer and Salancik point out that the external environment and its interactions with the organization provide the "raw material out of which the enacted environment is formed" (1978:63), and "if organizations can plan behavior only with respect to their constructions of the

environment and its meaning, then to speak of context separate from a particular focal organization makes little sense" (1978:73), making a strong case for pursuing "perceptual" groupings. They note later, however, that cognitively constructed environments face the problem of not correctly perceiving, "all the external groups it depends on or the relative importance of each" (1978:79). This point emphasizes the importance to managers of pursuing as objective a view as possible with respect to the external environment. As Scott says, "what you don't know can hurt (or help) you" (emphasis in the original, Scott, 1981:173). We now have the same arguments for both aggressively pursuing objectivity and for carefully measuring subjective perception in dealing with this Organization Theory question as we had with the strategic group question.

Scott offers a suggestion for escaping the paradox - one as valid for organization researchers as strategy researchers. Scott says, "ones measurement strategy should depend on what is being predicted" (1981:173). He then elaborates:

perceptual measures are necessary if we wish to predict the choices or behavior of organizational participants, but they are not sufficient if we wish to predict the outcome of these choices

Scott, (1981:173)

Scott's point seems to be that both views are valid at different points in a model which includes both factors. This clearly implies that in a comprehensive model both views must be included and no one perspective dominates. The focus should depend on the part of the model being studied. For strategic groups this suggests that in modeling the full process of strategy formulation two strategic groups are influencing a

firm's resource allocation decision at any one point in time: A grouping grounded in a search for objective realism and a grouping based on how the top management team perceives that industry. The first grouping is the "raw material" (in Pfeffer and Salancik's terms) for the second. The second grouping influences resource allocation decisions and those resource allocation decisions, in turn, affect the first grouping. This simultaneous consideration of Objective Groups (OGs) and Cognitive Groups (CGs) represent major change in the third Model. (See Porac et al. (1989), and Porac and Thomas (1990) for a further discussion on simultaneous consideration of both objective and subjective factors in research.)

Such a situation is illustrated by the Knitwear manager discussed earlier and the knitwear industry. The "objective" distinction between his firm and the larger firms has clearly disrupted his cognitive map. It is equally clear that the managing directors of the large firms have a different view of the opportunities which the competitive environment holds for Scottish firms and they are making resource allocation decisions in accordance with those beliefs. These decisions over time result in a clearly different strategy being followed by the large firms based on the scope of their product lines.

It is now suggested that two groupings Objective Groups (OGs) and Cognitive Groups (CGs) are both impacted by factors such as technological change (TC), legal/political/regulatory change (RC) and by other firm's resource allocation decisions (OFRADs). Stable strategic time periods are ended by the perception of

such discontinuities and the resulting changes in the resource allocation decisions of some firms in the industry. Cognitive groupings (CGs) are also affected by the Reference Group (RG) concept, but Objective Groups (OGs) are not. Adding periods of stability and change over time, the following model emerges:

Insert Figure 3 about here.

IMPLICATIONS, PROPOSITIONS AND RESEARCH STRATEGIES

The integrated model just presented does not simplify the role of strategic groups in strategy formulation. Instead, by being more inclusive it creates a more complex picture of how conceptualizations of intra-industry structure effect both the formulation process and the resource allocation decisions researchers observe. This third view represents a significant departure from the more exclusive views behind the first two models. In a broader framework of modeling and theorizing the exclusivity is not uncommon. While it is not the point of this paper to dissolve into a discussion of theoretical frameworks, a few paragraphs of digression may now be in order so as to better contrast the third view presented.

The IO Economic model is based on a paradigm which views concepts such as strategic groups with positivism, determinism and realism, what Burrell and Morgan

called the, "objective approach to social science" (1979:3). Strategy researchers conducting studies on the beer industry at Purdue attempted to separate themselves somewhat from approaches taken by the Harvard, IO stream (Hatten, Schendel and Cooper, 1978), but the same paradigm base was retained. Here, the Purdue and Harvard streams are argued to be distinctive due to their research perspective (Cool, 1985), that is, they assume this objective approach.

The research and model associated with Reger (1988) and Porac and his colleagues is using a framework which is different in its paradigm base. By searching out the perceptive reality of the individual manager and describing the nature of competition in terms of the labels these practitioners apply, their research takes a nominalistic and anti-positivist position. These two paradigms are logically inconsistent with each other in the framework Burrell and Morgan used. The resulting Model 3 which has been presented here can not, therefore, be seen as a combination of the two - they are fundamentally incompatible. Rather, it should be seen as a third perspective based on a conceptualization not found in either of the first two models.

The third model stakes out the conceptual position that the processes observed and the outputs measured when analyzing resource allocation decisions or similar decisions are responses to two sources of influence. Whether it be the strategic grouping of competitors, or the performance influences studied by Hansen and Wernerfelt (1989), or some other process, both cognitive and objective variables need

to be included in models and measured in research. Both must be recognized as contributing to the outcomes observed as well as to each other. The third model does this by incorporating both groupings is a process which interacts over time.

Propositions can now be presented regarding this third model. First through direct and indirect means both conceptualizations of groupings impact observed behavior, whether resource allocation decisions or performance. Therefore, any attempt to model or explain the intra-industry structure's import should include both.

P1 Performance and resource allocation decisions are influenced by economic groups within an industry and the perceptions of those groups held by the dominant coalition.

P2 Resource allocation decisions are influenced more by cognitive perceptions of strategic groups then by economic groups.

P3 Resource allocation decisions directly affect economic groupings of firms in intra-industry structure.

P4 Other factors, such as technological change, impact both economic and cognitive groupings.

These propositions lead to a circular path of causation over time.

It does not mean that either of the two methodologies of Strategic Group researchers discussed in the first part of the paper are not valid. Indeed, both are valid, but in a more limited context. The context should be seen as consistent with Scott's point about research focus: The focus of a particular research question should indicate a focus on Objective maps or Cognitive maps. For example, to anticipate the impact of a future event on firms would require an "objective" grouping analysis and an understanding of objective maps and their relationships to firm strategies. Factors such as firm size, degrees of vertical integration, capital structuring and geographic scope would probably be included in the analysis. On the other hand, to anticipate how managers will respond is a cognitive, sense making question. Here groups should be drawn based on perceptions of group membership. This can be done by looking at cognitive maps embedded in resource allocation decisions of the firm's dominant coalition relative to key strategic success factors such as advertising spending, R&D expenditures and acquisition policy. It must be remembered, however, that Model 3 is an interactive model. The variables are not mutually exclusive and because the two groupings influence each other over time, the variables both directly and indirectly influence each grouping. The interaction described here should not be ignored just to satisfy a desire for a simplicity which only exists in theoretical extremes.

Such a requirement suggests the use of Path Analysis techniques for this type of research. Path analysis is widely used in sociology, political science (Hanushek and Jackson, 1977) and has become more regularly used in strategic management by

researchers such as Woo (1987). Path models and techniques provide several advantages for future research. The ability to measure direct, indirect and total effects provides a richer understanding of causal relationships and intermediaries. For example, we may find that economic models may be correlated with resource allocation decisions but the causal influence would be seen through a direct effect through cognitive groupings. In general, the models discussed here all are based on underlying beliefs about relationships in the real world. Those relationships involve chains of events and interactions between variables which provide the most insight and which path models address.

**Model 1 of Strategic Groups
Original Conceptualization**

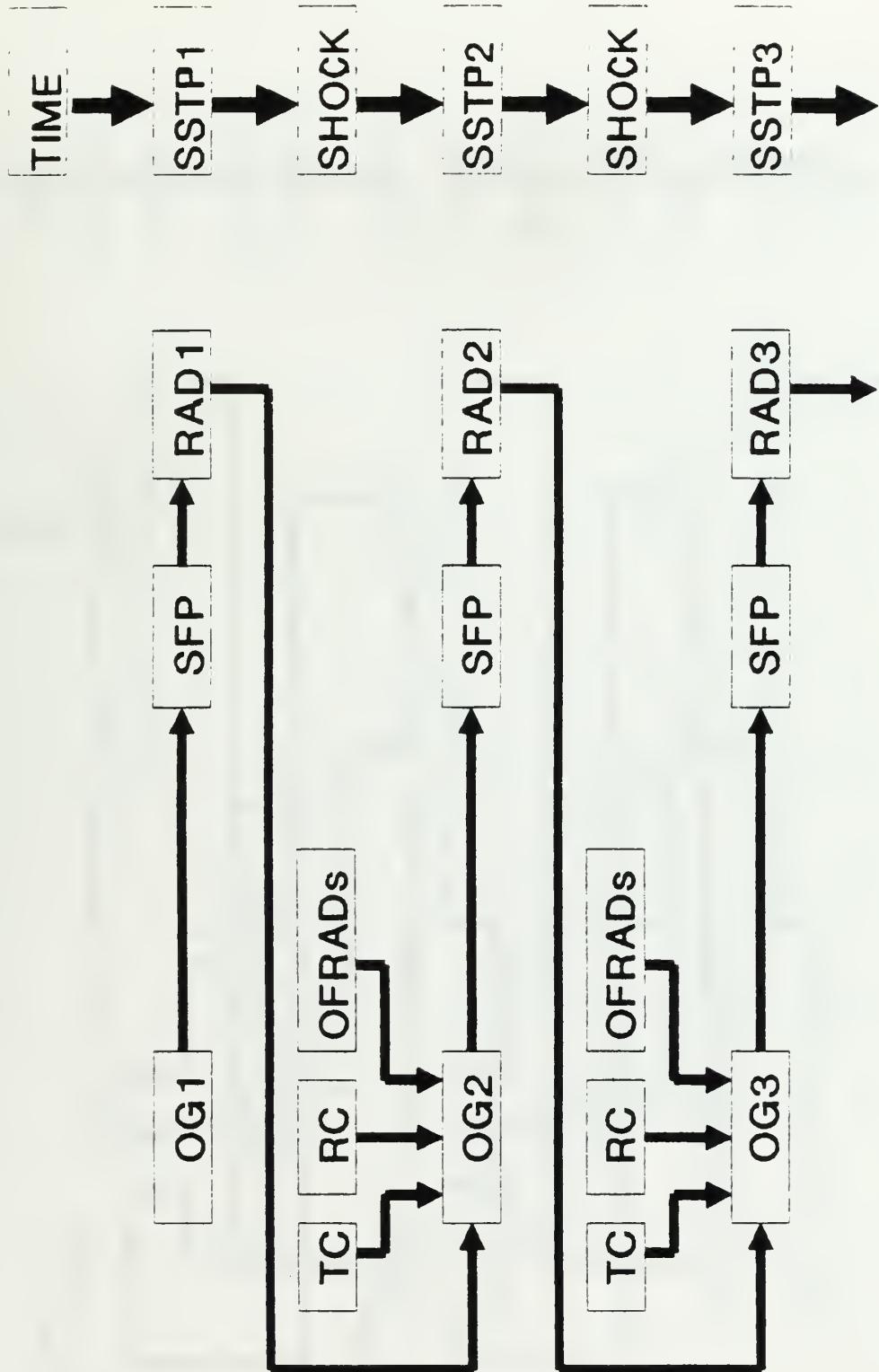


Figure 1

Model 2 of Strategic Groups Cognitive Conceptualizations

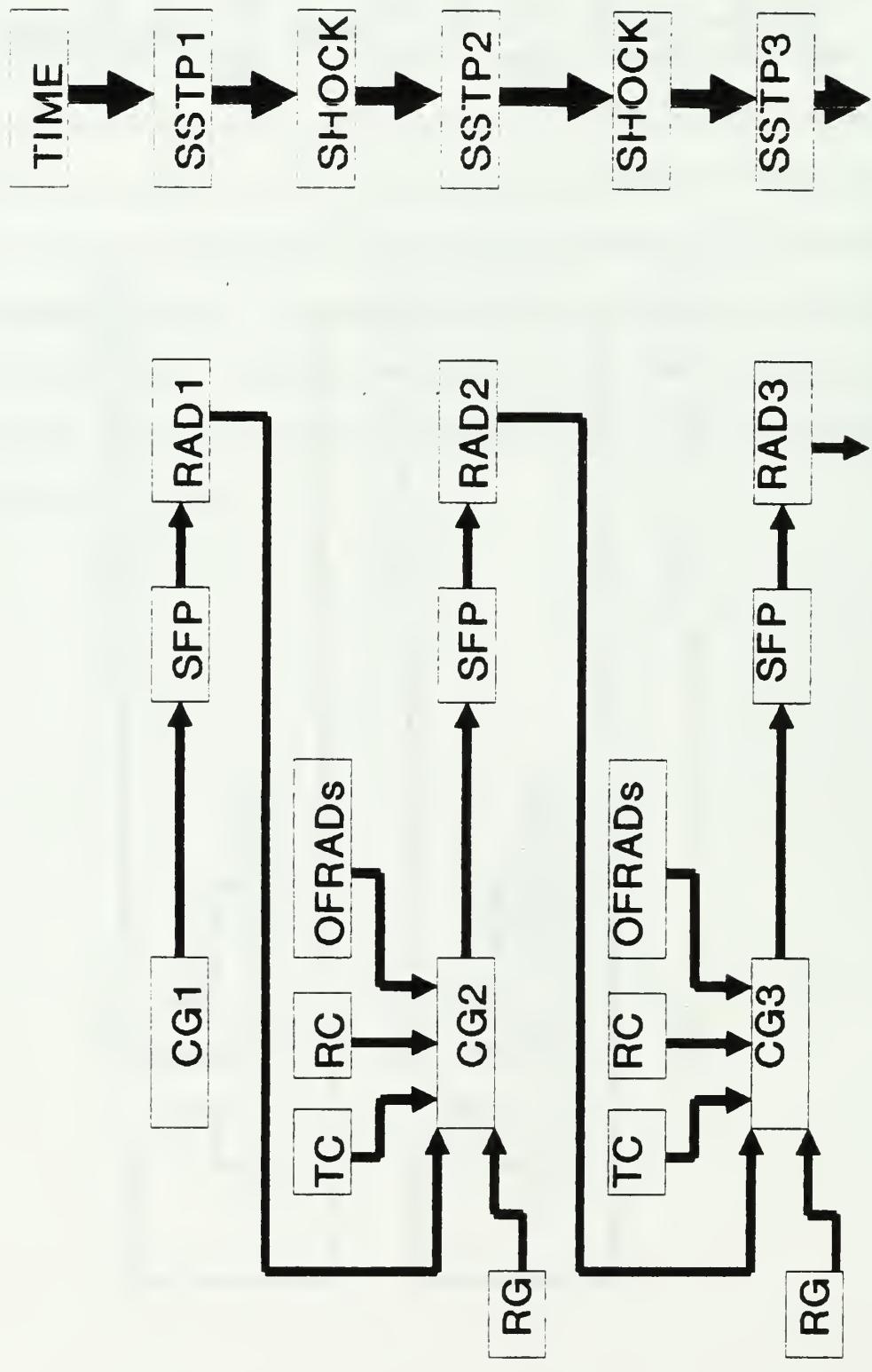


Figure 2

**Model 3 of Strategic Groups
Cognitive and Objective Groupings**

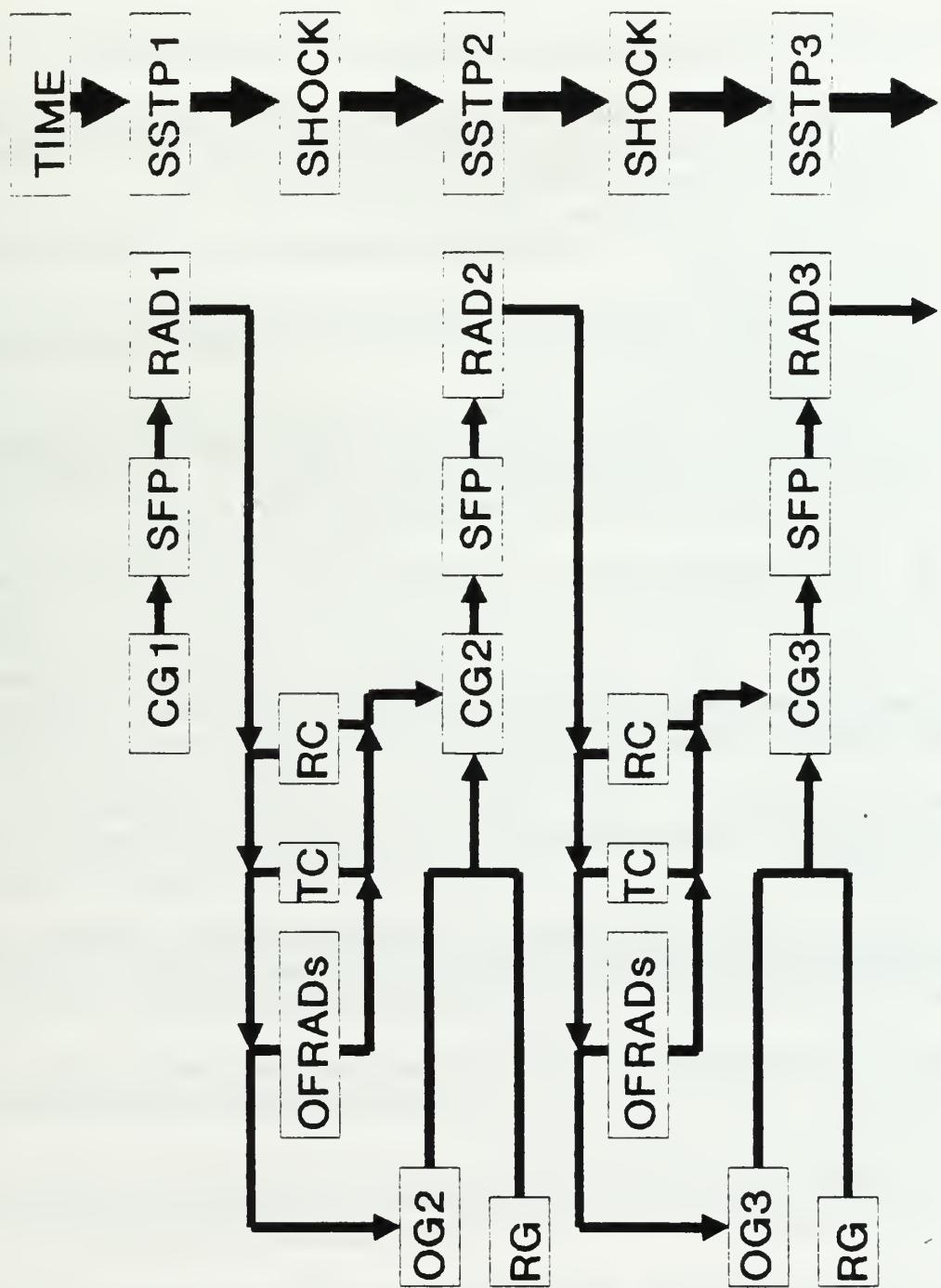


Figure 3

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